Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1.   (Cancelled)

2.   (Cancelled)

3.   (Currently Amended) The digital filter as claimed in claim 9⅟, wherein the digital filter is an FIR filter.

4-8.   (Cancelled)

9.   (New) A digital filter for extracting a frequency component by multiplying a plurality of data constituting a data signal in which at least one "0" is inserted so as to carry out zero value interpolation by a plurality of coefficients, comprising:

a plurality of delay circuits to shift the data signal;

a first selection section to select one data other than the inserted "0" from the plurality of data included in the data signal;

a second selection section to select one coefficient by which the data selected by the first selection section is multiplied, from the plurality of coefficients;

a multiplication section to multiply the data selected by the first selection section by the coefficient selected by the second selection section; and

an adding section to add multiplied results obtained by the multiplication section,

wherein the first selection section selects one data each time the data signal is shifted,

the second selection section selects one coefficient each time the data signal is shifted, and

the first selection section selects the one data according to a first predetermined repeating sequence and the second selection section selects the one coefficient according to a second predetermined repeating sequence.

10. (New) The digital filter as claimed in claim 9, wherein a number of steps constituting the first predetermined repeating sequence is equal to a number of the data constituting a repeating unit in the data signal formed by the zero value interpolation.

11. (New) A data processing method for extracting a frequency component by multiplying a plurality of data constituting a data signal in which at least one "0" is inserted so as to carry out zero value interpolation by a plurality of coefficients, comprising:

shifting the data signal;

selecting one data other than the inserted "0" from a plurality of data included in the data signal;

selecting one coefficient by which the selected data is multiplied, from a plurality of coefficients;

multiplying the selected one data by the selected one coefficient; and

adding multiplied results in the multiplying;

wherein the selecting of one data is carried out with each shifting of the data signal,

the selecting of one coefficient is carried out with each shifting of the data signal, and

the selecting of the one data is carried out according to a first predetermined repeating sequence and the selecting of the one coefficient is carried out according to a second predetermined repeating sequence.

12. (New) The data processing method as claimed in claim 11, wherein a number of steps constituting the first predetermined repeating sequence is equal to a number of the data constituting a repeating unit in the data signal formed by the zero value interpolation.